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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/875,754	06/06/2001	Dean M. Ford	26896-66723	7904

7590 08/09/2005

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EXAMINER	
MOFFAT, JONATHAN	

ART UNIT	PAPER NUMBER
2863	

DATE MAILED: 08/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/875,754	FORD, DEAN M.	
	Examiner	Art Unit	
	Jonathan Moffat	2863	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 June 2000*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-3* is/are allowed.

6)☒ Claim(s) *4-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 June 2000* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 03-05-2005
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

The disclosure is objected to because of the following informalities: The claims discuss two slightly different methods, both of which are intended for use together and are deeply dependent on one another. However, the method outlined by claims 1-3 is not discussed with as great detail as the second method in the specification or drawings. Further drawings detailing this first method would be appreciated. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 4-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aragones (6,799,154) in view of Nelson (NPL, Accelerated Testing, 1990).

With respect to claim 4, Aragones discloses a method of determining confidence distribution bounds by:

1) Providing a plurality of test data (Fig 5, item 76)
2) selecting a distribution model having two parameters and defined by a cumulative distribution function of a random variable (Fig 5).

Aragones fails to teach assigning numeric values to the distribution function, finding a likelihood function, integrating said likelihood function as a denominator and integrating said likelihood function up to a defined limit as a numerator, and performing said numerator/denominator division to create a confidence bound.

Nelson teaches assigning numeric values to the distribution function and random variable such that the first parameter is a function of the second, Nelson further teaches determining a likelihood function from the test data and distribution models, Nelson further teaches integrating the likelihood function up to a certain limit defined by the relationship between the 1^{st} and 2^{nd} parameters to find a numerator, Nelson further teaches integrating the entire likelihood function to find a denominator, and Nelson further teaches calculating the confidence bound by dividing the numerator by the denominator (Pages 235-236, 249, 296-297, and section 5.8).

It would have been obvious to one of ordinary skill in the art to perform the confidence bound calculations in the hardware of Aragones as prescribed by Nelson. This modification requires only adding specific software to the system of Aragones and represents only a more specific set of steps of carrying out the method disclosed by Aragones. This modification would be desirable for calculating more exactly the expected failure rates of components based on collected data.

With respect to claims 5 and 6, Aragones discloses that the distribution model used be one of Weibull, Gamma, Beta, Gaussian, and F functions, and more specifically that it be a Weibull distribution (Fig 2, item 44 and column 5, lines 46-54).

With respect to claims 7 and 8, Aragones discloses that the 1st parameter be scale and the 2nd parameter be shape since these are the associated parameters for a Weibull distribution as is commonly known in the art (column 5, lines 46-54).

With respect to claim 9, Aragones fails to disclose the incremental volume under the likelihood function is defined by the product of the same function, a change in logarithm of the first parameter, and a change in logarithm of the second parameter.

Nelson teaches that the incremental volume under the likelihood function is defined by the product of the same function, a change in logarithm of the first parameter, and a change in logarithm of the second parameter.

It would have been obvious to one of ordinary skill in the art to carry out the statistical calculations of Aragones using the statistical relationships of Nelson. This modification requires only adding specific software to the system of Aragones and represents only a more specific set of steps of carrying out the method disclosed by Aragones. This modification would be desirable for calculating more exactly the expected failure rates of components based on collected data.

With respect to claim 10, Aragones fails to disclose the incremental volume under the quotient of the likelihood function and one of first parameter and second parameter is defined by the product of the said quotient, a change in the first parameter, and a change in the logarithm of the second parameter.

Nelson teaches that the incremental volume under the quotient of the likelihood function and one of first parameter and second parameter is defined by the product of the said quotient, a change in the first parameter, and a change in the logarithm of the second parameter.

It would have been obvious to one of ordinary skill in the art to carry out the statistical calculations of Aragones using the statistical relationships of Nelson. This modification requires only adding specific software to the system of Aragones and represents only a more specific set of steps of carrying out the method disclosed by Aragones. This modification would be desirable for calculating more exactly the expected failure rates of components based on collected data.

With respect to claim 11, Aragones fails to disclose the incremental volume under the quotient of the likelihood and the product of the 1st and 2nd parameters be defined by the product of said quotient, a change in the first parameter, and a change in the second parameter.

Nelson teaches that the incremental volume under the quotient of the likelihood and the product of the 1st and 2nd parameters be defined by the product of said quotient, a change in the first parameter, and a change in the second parameter.

It would have been obvious to one of ordinary skill in the art to carry out the statistical calculations of Aragones using the statistical relationships of Nelson. This modification requires only adding specific software to the system of Aragones and represents only a more specific set of steps of carrying out the method disclosed by Aragones. This modification would be desirable for calculating more exactly the expected failure rates of components based on collected data.

With respect to claim 12, Aragones fails to disclose changing the value of one of the cumulative distribution functions and the random variable such that the calculated confidence bound substantially equals a desired value.

Nelson teaches changing the value of one of the cumulative distribution functions and the random variable such that the calculated confidence bound substantially equals a desired value.

It would have been obvious to one of ordinary skill in the art to modify the method of Aragones by allowing the approximation function to be calibrated such that the confidence bound equals a desired level. Such calibration is common in the art for finding values of variables that fit real world data.

With respect to claim 13, Aragones discloses taking one of a plurality of actions including creating a graphical representation of data, and predicting risks associated with occurrences over a time period (Fig 1, item 22).

Allowable Subject Matter

Claims 1-3 are allowed over prior art.

With respect to claim 1, Aragones teaches choosing initial values including a percentage as limit of a Weibull distribution having shape and scale parameter (well known in the art). Aragones further teaches using a Weibull distribution to create an array of percentages based on said established variables. Aragones further teaches taking action based on failure percentage data including plotting a graph or determining costs.

Although no reference is cited, selecting logarithmic arrays as input array parameters is commonly known in the art as a method of linearizing a Weibull distribution.

Nguyen (5,960,185) teaches determining a 2D array of probabilities off attaining sample of part failures.

No reference was found to teach limiting the 2D array of probabilities based on a selected significance level. Further no reference was found teaching a Weibull distribution wherein the shape and scale parameters relate to their location on the array. No reference was found teaching dividing the array of probabilities or finding sums thereof, nor did any reference teach comparing said sums. These innovations highlight the novelty of the enclosed invention.

With respect to claim 2, Aragones discloses a Weibull distribution function with the said formula.

With respect to claim 3, altering parameters to cause selected constants to fit real world data is well known in the art though no pertinent reference was found to teach it specifically.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Moffat whose telephone number is (571) 272-2255. The examiner can normally be reached on 8 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571) 272-2269. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JM

David Gray
Primary Examiner